In the Claims:

1. (currently amended) A method of controlling an unmanned aerial vehicle ~~(100)~~ from a control station ~~(110)~~ by means of a wireless command link ~~(115)~~, involving:

flight control in an autonomous mode wherein the vehicle ~~(100)~~ flies according to a primary route ~~(R1, R1')~~ defined by a first set of predefined waypoints ~~(WP1-WP8, IP)~~,

flight control in a manual mode wherein the vehicle ~~(100)~~ flies according to a primary route ~~(R1')~~ defined by control commands received via the wireless command link ~~(115)~~, and

functional monitoring of a set of flight control parameters ~~(P1-Pn)~~ in both the autonomous mode and the manual mode, wherein if, in any of the modes, at least one of the flight control parameters ~~(P1-Pn)~~ falls outside an acceptable range a major alarm condition is activated, the method involves flying the vehicle ~~(100)~~ according to an emergency route ~~(R2')~~ defined by a second set of predefined waypoints ~~(HP4, HP3, IP, TP9)~~, ~~characterized by~~ wherein the set of flight control parameters ~~(P1-Pn)~~ including at least one engine parameter, the method comprising:

activating a major alarm condition with respect to an engine failure in case at least one of the at least one engine parameter decreases below a threshold value, and in such case,

the emergency route ~~(R2')~~ involves flying the vehicle ~~(100)~~ to an air space above a termination waypoint ~~(TP1-TP9)~~ on the ground at which it is estimated that the vehicle's ~~(100)~~ flight may be ended without injuring any personnel or causing uncontrolled material damages.

2. (currently amended) ~~A~~ The method according to claim 1, ~~characterized by~~ wherein the set of flight control parameters ~~(P1-Pn) including~~ includes a command link parameter, the

method comprising:

activating a minor alarm condition with respect to a command link failure in case the command link ~~(115)~~ is interrupted during a first time interval ~~(T1)~~, and in such case,

initiating a horizontal flight of the vehicle ~~(100)~~.

3. (currently amended) ~~A~~ The method according to claim 2, ~~characterized by~~ wherein the method ~~comprising~~ comprises:

activating a major alarm condition with respect to a command link failure in case the command link ~~(115)~~ is interrupted during a second time interval ~~(T2)~~ exceeding said first time interval ~~(T1)~~, and in such case,

the emergency route ~~(R2')~~ involves flying the vehicle ~~(100)~~ towards a base location ~~(130)~~ on the ground.

4. (currently amended) ~~A~~ The method according to claim 3, ~~characterized by the flying of~~ wherein the vehicle ~~(100)~~ is flown towards the base location ~~(130)~~ involving elevating the vehicle ~~(100)~~ to a predetermined altitude.

5. (currently amended) ~~A~~ The method according to ~~any one of the claims 2-4, characterized by~~ claim 2, further comprising:

clearing the minor alarm condition with respect to a command link failure in case the command link ~~(115)~~ returns before expiry of the second time interval ~~(T2)~~, and

returning the flight control of the vehicle ~~(100)~~ to the mode in which the vehicle ~~(100)~~ was controlled before the interruption in the command link ~~(115)~~.

6. (currently amended) A method according to claim 2, wherein ~~any one of the claims 2-5, characterized by~~ in case of a major alarm condition with respect to a command link failure, the command link ~~(115)~~ remains interrupted during a third time interval ~~(T3)~~ exceeding said second time interval ~~(T2)~~, the emergency route ~~(R2')~~ involves flying the vehicle ~~(100)~~ to an air space above a termination waypoint ~~(TP1-TP9)~~ on the ground at which it is estimated that the vehicle's ~~(100)~~ flight may be ended without injuring any personnel or causing uncontrolled material damages.

7. (currently amended) ~~A~~ The method according to claim 6, ~~characterized by~~ wherein in case of a major alarm condition with respect to a command link failure, the command link ~~(115)~~ remains interrupted during a fourth time interval ~~(T4)~~ exceeding said third time interval ~~(T3)~~, initiating an emergency landing of the vehicle ~~(100)~~ at the termination waypoint ~~(TP1-TP9)~~.

8. (currently amended) ~~A~~ The method according to claim 1, wherein ~~any one of the preceding claims, characterized by~~ in case the command link ~~(115)~~ returns at any instance in time, ~~transmitting~~ a link status message is transmitted from the vehicle ~~(100)~~ to the control station ~~(110)~~, the link status message indicating a functioning condition for the command link ~~(115)~~.

9. (currently amended) ~~A~~ The method according to claim 8, ~~characterized by~~ wherein after transmission of the link status message, the method ~~involving~~ further comprises:

enabling the vehicle ~~(100)~~ to receive overriding commands from the control station ~~(110)~~

via the command link ~~(115)~~,

discontinuing a flight according to the emergency route ~~(R2')~~ in case overriding commands are received, and in such case

enabling a flight control according to the manual mode.

10. (currently amended) ~~A~~ The method according to claim 1, wherein ~~any one of the claims 1-9, characterized by~~ the autonomous flight control mode ~~involving~~ includes transmission of the control commands to the vehicle ~~(100)~~ in the form of a number of commands constituting an alternative set of waypoints ~~(WP4')~~.

11. (currently amended) ~~A~~ The method according to claim 1, wherein ~~any one of the claims 1-10, characterized by~~ the manual flight control mode ~~involving~~ includes transmission of the control commands to the vehicle ~~(100)~~ in the form of real-time commands ~~(WP4')~~.

12. (currently amended) ~~A~~ The method according to ~~any one of the claims 1-11, characterized by~~ claim 1, further comprising:

selecting points from the first set of predefined waypoints ~~(WP1-WP8, IP)~~ from an indexed table by means of a stepwise procedure, and

selecting points from the second set of predefined waypoints ~~(HP1-HP7, TP1-TP9, IP)~~ by means of jumping from a first line in the indexed table to a second line in the indexed table, the second line being specified on said first line.

13. (currently amended) A computer program directly loadable into the internal memory

of a digital computer, comprising software for accomplishing the steps of ~~any of the claims 1–12~~ claim 1 when said program is run on a computer.

14. (currently amended) A computer readable medium, having a program recorded thereon, where the program is to make a computer accomplish the steps of ~~any of the claims 1–12~~ claim 1.

15. (currently amended) An unmanned aerial vehicle ~~(100)~~ controllable from a control station ~~(110)~~ by means of a wireless command link ~~(115)~~ comprising

an on-board flight control system ~~(310)~~ including:

an autonomous control sub-system ~~(311)~~ adapted to control the vehicle to fly according to a primary route ~~(R1)~~ defined by a first set of predefined waypoints ~~(WP1–WP8, IP)~~, and

a manual control sub-system ~~(312)~~ adapted to receive commands from the control station ~~(110)~~ via the wireless command link ~~(115)~~, and control the vehicle ~~(100)~~ to fly according to a primary route ~~(R1')~~ defined by the commands from the control station ~~(110)~~, and

a functional monitoring system ~~(320)~~ adapted to monitor a set of flight control parameters ~~(P1–Pn)~~, and in case at least one of the flight control parameters ~~(P1–Pn)~~ falls outside an acceptable range, set a major alarm condition and initiate a flight of the vehicle ~~(100)~~ according to an emergency route ~~(R2')~~ defined by a second set of predefined waypoints ~~(HP4, HP3, IP, TP9)~~, ~~characterized in that~~ wherein the set of flight control parameters ~~(P1–Pn)~~ includes at least one engine parameter, and the functional monitoring system is adapted to, in case at least one of the

at least one engine parameter decreases below a threshold value, set an alarm condition with respect to an engine failure, and fly the vehicle ~~(100)~~ according to the emergency route ~~(R2')~~ to an air space above a termination waypoint ~~(TP1-TP9)~~ on the ground at which it is estimated that the vehicle's ~~(100)~~ flight may be ended without injuring any personnel or causing uncontrolled material damages.

16. (currently amended) ~~An~~ The unmanned aerial vehicle ~~(100)~~ according to claim 15, ~~characterized in that~~ wherein the functional monitoring system ~~(320)~~ is adapted to monitor the wireless command link ~~(115)~~, and in case the command link ~~(115)~~ is interrupted during a first time interval ~~(T1)~~:activate an alarm condition with respect to a minor command link failure, and

initiate a horizontal flight of the vehicle ~~(100)~~.

17. (currently amended) ~~An~~ The unmanned aerial vehicle ~~(100)~~ according to claim 16, ~~characterized in that~~ wherein the functional monitoring system ~~(320)~~ is adapted to, in case the command link ~~(115)~~ is interrupted during a second time interval ~~(T2)~~ exceeding said first time interval ~~(T1)~~:activate a major alarm condition with respect to a command link failure, and

fly the vehicle ~~(100)~~ towards a base location ~~(130)~~ on the ground.

18. (currently amended) ~~An~~ The unmanned aerial vehicle according to claim 16, wherein ~~any one of the claims 16 or 17, characterized in that~~ the functional monitoring system ~~(320)~~ is adapted to, in case the command link ~~(115)~~ returns before expiry of the second time interval ~~(T2)~~:

clear the alarm condition with respect to the minor command link failure, and

return the flight control of the vehicle ~~(100)~~ to the control sub-system which controlled the vehicle ~~(100)~~ before the interruption in the command link ~~(115)~~.

19. (currently amended) ~~An~~ The unmanned aerial vehicle according to claim 17, wherein ~~any one of the claims 17 or 18, characterized in that~~ the functional monitoring system ~~(320)~~ is adapted to, in case of a major alarm condition with respect to a command link failure, the command link ~~(115)~~ remains interrupted during a third time interval ~~(T3)~~ exceeding said second time interval ~~(T2)~~, fly the vehicle ~~(100)~~ to an air space above a termination waypoint ~~(TP1-TP9)~~ on the ground at which it is estimated that the vehicle's ~~(100)~~ flight may be ended without injuring any personnel or causing uncontrolled material damages.

20. (currently amended) ~~An~~ The unmanned aerial vehicle ~~(100)~~ according to claim 17, wherein ~~any one of the claims 17-19, characterized in that~~ the functional monitoring system ~~(320)~~ is adapted to initiate a landing of the vehicle ~~(100)~~ at the termination waypoint ~~(TP1-TP9)~~, if at the expiry of a fourth time interval ~~(T4)~~ after that the command link failure occurred, the command link failure remains; the fourth time interval ~~(T4)~~ exceeding said third time interval ~~(T3)~~.

21. (currently amended) ~~An~~ The unmanned aerial vehicle ~~(100)~~ according to claim 16, wherein ~~any one of the claims 16-20, characterized in that~~ the functional monitoring system ~~(320)~~ is adapted to, in case the command link ~~(115)~~ returns at any instance in time, generate a link status message indicating a functioning condition for the command link ~~(115)~~.

22. (currently amended) ~~An~~ The unmanned aerial vehicle ~~(100)~~ according to claim 21, characterized in that the functional monitoring system ~~(320)~~ is adapted to, after that the link status message has been transmitted to the control station:

enable the vehicle ~~(100)~~ to receive overriding commands from the control station ~~(110)~~ via the command link ~~(115)~~,

discontinue a flight according to the emergency route ~~(R2')~~ in case overriding commands are received, and in such case

enable activation of the manual control sub-system ~~(312)~~.